IN THE CLAIMS:

Please amend claim 9 and cancel claim 10 as shown below.

Claim 1 (Previously Presented): A method for estimating a maximum discharge power of a battery, comprising:

generating a signal indicative of a present state-of-charge of said battery, utilizing a sensor;

calculating said present state-of-charge of said battery based on said signal, utilizing an arithmetic circuit operably coupled to said sensor;

calculating a maximum discharge current of said battery utilizing said arithmetic circuit based on at least a minimum state-of-charge limit associated with said battery, said present state-of-charge of said battery, and a minimum voltage limit associated with said battery such that a future output voltage of said battery does not fall below said minimum voltage limit and a future state-of-charge of said battery does not fall below said minimum state-of-charge limit associated with said battery; and,

calculating said maximum discharge power based on said maximum discharge current value, utilizing said arithmetic circuit.

Claim 2 (Previously Presented): The method of claim 1, wherein said step of calculating said maximum discharge current is also based on a maximum current limit associated with said battery.

Claim 3 (Cancelled).

Claim 4 (Previously Presented): The method of claim 1, further comprising calculating said present state-of-charge of said battery using a Kalman filtering method.

Claim 5 (Cancelled).

Claim 6 (Previously Presented): The method of claim 1, wherein said battery is a battery pack comprising at least one cell.

Claims 7-8 (Cancelled).

Claim 9 (Currently Amended): ~~The method of claim 1, wherein said step of calculating maximum discharge current of said battery is also based on a cell model~~

A method for estimating a maximum discharge power of a battery, comprising:

generating a signal indicative of a present state-of-charge of said battery, utilizing a sensor;

calculating said present state-of-charge of said battery based on said signal, utilizing an arithmetic circuit operably coupled to said sensor;

calculating a maximum discharge current of said battery utilizing said arithmetic circuit based on at least a minimum state-of-charge limit associated with said battery, said present state-of-charge of said battery, a minimum voltage limit associated with said battery, and a cell model that is solved by a Taylor-series expansion, such that a future output voltage of said battery does not fall below said minimum voltage limit and a future state-of-charge of said battery does not fall below said minimum state-of-charge limit associated with said battery; and,

calculating said maximum discharge power based on said maximum discharge current value, utilizing said arithmetic circuit.

Claim 10 (Cancelled).

Claim 11 (Original): The method of claim 9 wherein said cell model is solved by using a discrete time-state space model.

Claim 12 (Previously Presented): The method of claim 9 wherein said battery is a battery pack comprising at least one cell.

Claim 13 (Previously Presented): The method of claim 12 wherein said cell model is

$v_k(t+\Delta t)=OCV(z_k(t+\Delta t)) - R \times i_k(t)$

wherein $v_k(t+\Delta t)$ denotes a cell voltage for a cell k for a time period Δt units into the future, $OCV(z_k(t+\Delta t))$ denotes an open cell voltage as a function of a state-of-charge z_k for cell k for a time period Δt units into the future, R is a constant that denotes an internal resistance of said cell k, and $i_k(t)$ denotes a cell current for cell k.

Claims 14-15 (Cancelled).

Claim 16 (Original): The method of claim 13 wherein said cell model is solved by using a discrete time-state space model.

Claim 17 (Previously Presented): The method of claim 16 wherein said discrete time-state space model is

$x_k[m+1]=f(x_k[m],u_k[m])$

$v_k[m]=g(x_k[m],u_k[m])$

wherein m denotes a discrete time sample index, $x_k[m]$ denotes a vector function of time and a state of the battery, $u_k[m]$ denotes an input to the battery and includes cell current $i_k[m]$ as a component, and $f(\bullet)$ and $g(\bullet)$ are functions chosen to model cell dynamics.

Claims 18-20 (Cancelled).

Claim 21 (Previously Presented): The method of claim 17 wherein $i_{max,k}^{dis,volt}$ is found by looking for i_k that causes equality in

$v_{min}=g(x_k[m+T],u_k[m+T])$

wherein $g(x_k[m+T], u_k[m+T])$ is utilized to determine the cell voltage for the cell k at a predetermined time in the future.

Claims 22-28 (Cancelled).

Claim 29 (Previously Presented): The method of claim 1, wherein said calculated maximum discharge power is checked to ensure that it falls within power limits of said battery.

Claims 30-74 (Cancelled).

Claim 75 (Previously Presented): A system for estimating a maximum discharge power of a battery, comprising:

a sensor configured to generate a signal indicative of a present state-of-charge of said battery; and

an arithmetic circuit operably coupled to said sensor, said arithmetic circuit configured to calculate said present state-of-charge of said battery based on said signal, the arithmetic circuit further configured to calculate a maximum discharge current of said battery based on at least a minimum state-of-charge limit associated with said battery, said present state-of-charge of said battery. and a minimum voltage limit associated with said battery such that a future output voltage of said battery does not fall below said minimum voltage limit and a future state-of-charge of said battery does not fall below said minimum state-of-charge limit, said arithmetic circuit further configured to calculate said maximum discharge power based on said maximum discharge current value.